

IN THE CLAIMS:

1. (Currently Amended): A network topology backplane bus architecture comprising:
~~a plurality of four~~ independent data communication lines;
a plurality of processing nodes sharing said independent data communication lines for data communication;
one or more of said processing nodes associated with a first enclosure being normally connected for ~~both transmitting and receiving on only a first and second subset of~~ said data communication lines and being normally connected for ~~only receiving on all a second subset of~~ said data communication lines; and
~~another of said one or more other~~ processing nodes associated with a second enclosure being normally connected for ~~both transmitting and receiving on only a third and fourth said second subset of~~ said data lines and being normally connected for ~~only receiving on said first subset all of~~ said data lines.

2. (Currently Amended): The network topology backplane bus architecture recited in claim 1, wherein ~~ones of said the first and third~~ independent data communication lines comprise a first independent data communication network and ~~different ones of said the second and fourth~~ independent data communication lines comprise a second independent data communication network.

3. (Canceled)

4. (Currently Amended): The network topology backplane bus architecture recited in claim 1, wherein said ~~one of said processing nodes~~ associated with the first enclosure ~~transmitting and receiving on a first subset of said data communication lines utilizes~~ utilize at least one of said first subset of said and second data communication lines for local communication ~~within said processing node with other nodes associated with the first enclosure.~~

5. (Currently Amended): The network topology backplane bus architecture recited in claim 4, wherein said ~~one of said~~ processing nodes associated with the first enclosure transmitting and receiving on a first subset of said data communication lines further utilizes utilize at least one of said first subset of said first and second data communication lines for broadcasting transmissions to another of said processing nodes associated with the second enclosure.

6.-8. (Canceled)

9. (Currently Amended): The network topology backplane bus architecture recited in claim 7~~5~~, wherein each of plurality of processing nodes associated with the first enclosure transmitting and receiving on said first subset of said data communication lines time-shares at least one of said first and second data communication lines with others of said plurality of the other processing nodes associated with the first enclosure transmitting and receiving on said first subset of said data communication lines.

10. (Currently Amended): The network topology backplane bus architecture recited in claim 9, wherein ~~each of plurality of processing nodes transmitting and receiving on said first subset of said data communication lines time-shares~~sharing said data communication lines is synchronized in synchronization with others of said plurality of processing nodes transmitting and receiving on said first subset of said data communication lines.

11. (Currently Amended): The network topology backplane bus architecture recited in claim 5, wherein said processing nodes associated with the second enclosure transmitting and receiving on said second subset of said data lines and receiving on said first subset of said data lines utilizes utilize at least one of said third and fourth second subset of said data communication lines for local communication within said processing node with other nodes associated with the first enclosure.

12. (Currently Amended): The network topology backplane bus architecture recited in claim 11, wherein said processing nodes associated with the second enclosure ~~transmitting and receiving on said second subset of said data communication lines further utilizes~~ utilize at least one of said third and fourth ~~second subset of said data communication lines~~ for broadcasting transmissions to ~~another of said processing nodes~~ associated with the first enclosure.

13. (Original): The network topology backplane bus architecture recited in claim 12, wherein ones of said processing nodes supports different ones of flight critical functions.

14. (Original): The network topology backplane bus architecture recited in claim 13, wherein one or more of said processing nodes supporting one of said flight critical functions is duplicated in one or more additional ones of said processing nodes.

15. (Currently Amended): The network topology backplane bus architecture recited in claim 14, wherein one of said processing nodes supporting said one of said flight critical functions is located in a the first resource ~~enclosure~~; and at least one of said additional processing nodes supporting said one of said flight critical functions is located in the a physically isolated ~~second resource~~ enclosure.

16.-29. (Canceled)

30. (Currently Amended): A method of sharing independent data communication lines for fault tolerant data communication among a plurality of processing nodes, the method comprising:

~~dividing a plurality of data communication lines into mutually exclusive first and second subsets of data communication lines;~~

~~permitting one or more first processing nodes both transmitting and receiving privileges on a first and a second~~ said first subset of data communication lines and

~~limiting second processing nodes to only receiving privileges on said first subset of data communication lines;~~

permitting one or more ~~to the~~ second processing nodes both transmitting and receiving privileges on a third and a fourth ~~said second subset of~~ data communication lines and ~~limiting the first processing nodes to only receiving privileges on said second subset of data communication lines. ; and~~
providing all the nodes receiving privileges on all of the data communication lines.

31.-34. (Canceled)